

SiteNet® Integrator

SNMP Communications for Integrated Products

Load Control Module

SNMP Remote Control of Critical Loads

USER MANUAL English



IMPORTANT SAFETY INSTRUCTIONS

SAVE THESE INSTRUCTIONS

This manual contains important safety instructions that should be followed during the installation and maintenance of this product. Please read this manual thoroughly before attempting to install or operate this product.

This equipment can be installed and operated by individuals without previous training.

- Sitenet Integrators and Load Control Modules (LCM) are available for 120VAC and 230VAC supply voltages/loads. Please verify that this model matches your AC mains/ load voltage requirements.
 For UPS installation requirements, refer to user manual supplied with the UPS.
- This equipment is designed for Commercial/Industrial use only. Liebert Corporation neither recommends nor knowingly sells this product for use in critical life support applications.
 - The LCM 230VAC models are not supplied with an input power lead for connection from the LCM to the UPS output. Use the output power lead with your UPS to connect the UPS to the LCM power input.
- 3. The LCM must be grounded / earthed at all times during operation. Connect only to the UPS output or a mains supply socket outlet with an earth connection. A means of disconnection of the mains supply should be within 2 metres of the UPS/LCM installation..
- 4. To reduce the risk of electric shock, do not remove the covers, there are no user-serviceable parts inside. For service, contact a qualified technician.
 - To prevent the risk of fire or electric shock, install the UPS/LCM/Integrator in a temperature and humidity controlled room, free of conductive contaminants.
- The UPS output receptacles providing conditioned power to the LCM module must be capable of supplying at least 10 amperes to the 230V LCM module (12 amperes for 120V modules) plus a supply of 50 mA for the Integrator module power supply.
- 6. The total load earth leakage current of the installation comprising the UPS, LCM and your connected load must not exceed 3.5 milli-amperes for 230v models (5.0 milliamperes for 120V supplies). Where this may be exceeded the LCM module should be provided with a supplementary bonding conductor to ground(earth). For further advice contact your dealer.
- The installation relies on your building wiring overcurrent protection, which must not be rated more than 20 amperes.
- When using the communication features on the UPS, ensure the cabling connected to the DB9 communication port or the network connection are kept separated by 25mm from the power leads to the UPS input and output.

Information for 230V users

Electromagnetic Compatibility: The 230V LCM/Integrator combination complies with EMC Directive 89/336/EEC and the published technical standards. Continued compliance requires installation in accordance with these instructions and the use of manufacturer approved accessories only.

WARNING:

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take additional measures.

Information for 120V users

The 120V LCM/Integrator combination complies with the limits for a Class A digital device, pursuant to Part 15 of FCC rules. These limits provide reasonable protection against harmful interference in a commercial environment. This device generates, uses, and radiates radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operating this device in a residential area is likely to cause harmful interference, which the user must correct at his own expense.

CAUTION:

Although your LCM/Integrator has been designed and manufactured to assure personal safety, improper use can result in electrical shock or fire. To ensure safety, please observe the following rules:

- Turn off and unplug your LCM/Integrator before cleaning. Do not use liquid
 or aerosol cleaners. A dry cloth is recommended to remove dust from the
 surface of your modules.
- Do not install or operate in or near water.
- Do not place on an unstable cart, stand, or table.
- Do not place under direct sunlight or close to heat emitting sources.
- Do not place power cords in any area where it may get damaged by heavy objects.
- Follow all warnings and instructions marked on the LCM/Integrator. Do not attempt to service the LCM/Integrator, as it has no user-serviceable parts inside. Refer all repairs to qualified service personnel.

ATTENTION:

Turn off and unplug your installation from the receptacles and contact qualified service personnel if:

- If any power cord or plug is damaged.
- Liquid has been spilled on the modules.
- The fuse/circuit breakers blows/trip frequently.
- The installation does not operate correctly even when the user follows the operating instructions.

CONDITIONS OF USE:

Your UPS provides conditioned power to the LCM and your connected equipment. Maximum load must not exceed that shown on LCM rating label. If uncertain, consult your distributor or Liebert.

INTRODUCTION

Congratulations on the purchase of the Liebert SiteNet® Integrator Environmental Interface with optional Load Control Module. The SiteNet® Integrator monitors and controls various network devices such as UPS Systems. Environmental Control Systems, and Site Security Devices. Two output contact closures control external devices.

With an optional SiteNet® Integrator Load Control Module (LCM), the Integrator (Ethernet version) allows remote network control of up to six connected loads. The SiteNet® Integrator uses Simple Network Management Protocol (SNMP) to communicate status information contained in a Management Information Base (MIB) to your Network Management System (NMS). In addition to the UPS MIB, the Integrator also monitors data and environmental control conditions (see "Integrator Environmental MIB").

Basic SiteNet® Integrator features include:

- Ethernet or Token Ring compatibility
- Power source redundancy with two separate power inputs
- Up to ten (10) digital inputs
- Two temperature/humidity sensor inputs
- One thermistor sensor input
- Audible alarms
- Two programmable relay outputs
- Front panel status and output LED indicators
- Programmable alarm traps.
- Customize audible alarms, output relays, LED's, and traps to control how the Integrator communicates various information.

Basic LCM Module features include:

- Six separately controllable output receptacles
- Output status and main power LED indicators
- Adjustable start-up delay for sequential power-up
- Ethernet compatibility

GLOSSARY OF SYMBOLS



Attention See user manual



No user serviceable parts inside



Receptacle power on



On



Standby



Decrease delay time clockwise



Danger Hazardous electrical parts inside



Input



Output

INTEGRATOR INSTALLATION

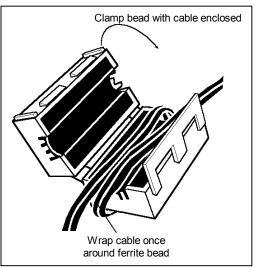
SiteNet® Integrator installation requires these items:

- RS-232 (Integrator to UPS) cable-optional (Liebert part no. 141088P1)
- RS-232 Integrator to (PC) terminal cable with adapter (Liebert part nos. 146618P1 and 146617P1 respectively)
- SiteNet® Integrator User's Manual
- Diskettes containing UPS MIBs and the Integrator Environmental MIB in DOS and TAR (UNIX) formats.
- Ferrite Beads (included, Liebert part no. 146736P1 for .25" bead, 146735P1 for .5" bead)

Ferrite Bead Installation

Install the two ferrite beads on the incoming power supply and network connection cables prior to SiteNet® Integrator operation. Open the smaller ferrite bead. Wrap the main power supply cable around the ferrite bead once and clamp the bead with the power supply cable enclosed.

Open the larger ferrite bead. Place the network cable inside the ferrite bead, and clamp the bead with the network cable enclosed. Clamp the ferrite bead near the connector that mates with the Integrator.



Temperature / Humidity Sensor Wiring Instructions

There are two temperature / humidity sensor options available, differentiated only by cable size. Both cables provide temperature (32° F - 140° F) and humidity (20% to 80 % RH) monitoring.

- 141604G1L: Sensor package with 15 ft. cable
- 141605G1L: Sensor package with 30 ft. cable

Wiring the Temperature / Humidity Sensor to the Integrator

- The Temperature / Humidity Sensor has four wires green, black, white, red. A braided, silver shield is also included to ground to the Integrator.
- Cut wires to remove the adapter and strip the end to expose the metal.
- 3. Wire the Temperature / Humidity module to the Integrator as follows:

Green	1	Т
Black	↑	Η

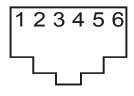
White	→	+
Red		-

 Connect the braided shield to one of the two ground screws on the Integrator. Assure that the Integrator is also properly grounded.

Power, UPS, and Terminal Connections

Refer to the figure on the following page when making Integrator power, UPS, and terminal connections.

- Connect Main Power Supply Cable to Integrator Main Power Port and then to a UPS-controlled receptacle.
- Connect optional (but recommended) Auxiliary Power Supply Cable to Integrator Auxiliary Power Port and then to a NON-UPS-controlled receptacle.
- 3. Connect the optional UPS DB-9 Output Cable to the Liebert UPS Output Port and then to the UPS serial port.
- Connect all Liebert or customer supplied input devices (such as sensors or switches) and output relays required for your installation.
- 5. Connect the PC or Terminal Configuration Cable to the PC or Terminal Configuration Port and then to an ASCII terminal or a PC with terminal emulation software. Disconnect this connection after proper SNMP configuration. The configuration port is a RJ-12 jack. The wire descriptions are as follows:



TxD	wire 2
RxD	wire 3
SG	wire 5
Not Connected	wires 1,4,6

Pin 2	TxD	\leftrightarrow	RxD	Pin 3	
Pin 3	RxD	\leftrightarrow	TxD	Pin 2	
Pin 5	Gnd	\leftrightarrow	Gnd	Pin 5	

NOTE: If building or using your own cable, do not connect wires 1 and 6. Grounding wires 1 or 6 creates a fault error.

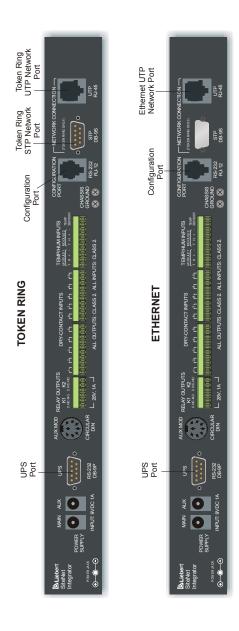
For PC's with terminal emulation, set parameters as follows:

Baud Rate: 9600Parity: NoneData Bits: 8Stop Bit: 1

- Flow Control: None

6. Switch the Integrator On/Off Switch to ON.

INTEGRATOR NETWORK PORTS



LCM INSTALLATION

LCM installation requires these items:

Installed SiteNet® Integrator

8-pin DIN Integrator to LCM cable

This SiteNet® Integrator Load Control Module User's Manual

A suitable Uninteruptible Power Supply (UPS) rated:

- 120V, 12 Amps for the 120V LCM
- 230V, 10 Amps for the 230V LCM

LCM, Integrator and Power Connections

Refer to the figure on the following page when making LCM power connections.

- Plug the AC power cord into the LCM module.
- 2. Connect the 8-pin DIN cable to the LCM and Integrator.

Receptacle Time Delay Adjustment & Load Connection

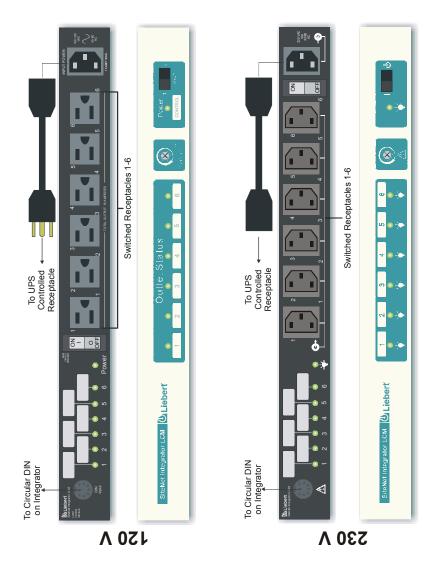
Powering up the LCM sequentially activates the switched receptacles (one through six) with a time delay between each activation. The time delay ranges from .1 to 7 seconds.

- To test interval time, press LCM ON switch before plugging in loads. Note the time between the activation of each light (one through six). Press switch again to turn off.
- Insert a small screwdriver into the time delay adjustment, just left of the main power switch, to adjust the amount of time between receptacles. Turn clockwise to decrease and counterclockwise to increase the receptacle time delay.
- 3. Plug loads into LCM receptacles. Consider time delays if you skip receptacles. Press On switch to confirm appropriate time delay.

NOTE: If adjustment is turned beyond maximum setting, delay will return to minimum setting.

CAUTION: Total load must not exceed 12 Amps (10 Amps for 230V). Total leakage current of UPS and connected loads must not exceed 5mA (3.5 mA for 230V).

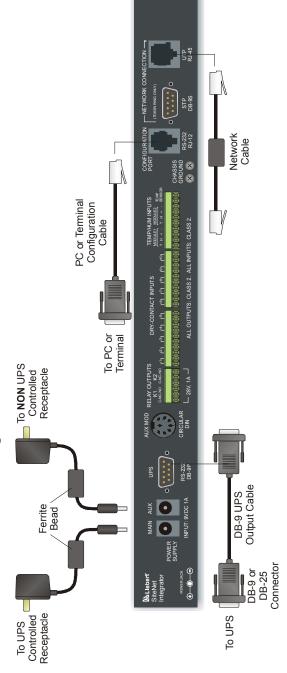
LCM Power Connections



SNMP AGENT CONFIGURATION

- Refer to the figure on the following page when following the Integrator network connection instructions below.
 - **Ethernet:** The Integrator Ethernet Network Port is an RJ-45 jack for an Ethernet unshielded twisted pair (UTP) 10BASET connection.
 - **Token Ring:** The Integrator allows two possible Token Ring connections Use the STP DB-9S jack for a shielded twisted pair connection; use the UTP RJ-45 jack for an unshielded twisted pair connection. Connect the user-supplied network cable (with ferrite beads installed) to the appropriate network port and then to the network.
- 2. Verify or manually enter the SiteNet® Integrator IP address and Net Mask. All Ethernet Options support the BOOTP function in SNMP, which provides the Integrator's IP address, Net Mask, and Default Router. The SNMP Agent will request a TFTP file with additional instructions on assigning addresses supported by BOOTP. Refer to the sample TFTP file at the end of this manual and the BOOTP and TFTP server documentation for server configuration.
 - NOTE: Turn caps lock **OFF**. Type configuration entries in lowercase.
- 3. The BOOTP feature comes factory-enabled. If your network does not run BOOTP and TFTP servers, disable the BOOTP function (BootP mode: off), and manually enter Integrator network configuration information. For manual entry, press Enter after your ASCII terminal displays the message "BOOTP Server has not responded yet". Allow at least 60 seconds for the system response, "Do you wish to go to the configuration menu? (Y/N)". Press "y", and the Configuration Menu displays with pre-loaded factory defaults (see Ethernet and Token Ring menus on the page following the Integrator Network Ports diagram).
- 4. Press "i" to enter the IP Address. Press "m" to enter the Net Mask. Press "b" to turn BootP mode off. Press the appropriate keys associated with any other parameter you wish to enter (see steps 6 &7). When finished, Press "x" to permanently save the settings and exit the configuration menu. The SNMP Agent automatically restarts with the new settings.
 - NOTE: BootP mode must be **off** to manually enter settings. If on, BootP erases any new settings when the user attempts to save them.
 - If your network begins running BOOTP and TFTP servers after you disabled the BootP mode and manually entered the Integrator configuration settings, reassign these settings through BOOTP by configuring the BOOTP and TFTP servers and enabling the BOOTP function (BootP mode: on).
- 5. Run the SNMP software (it runs automatically after saving manually entered settings). If IP Address and Net Mask are already configured, the software runs automatically at power-up.

Integrator Power, UPS, and Terminal Connections



Configuration Menu				
Press the key to modify the entry				
-d sysDescr: Uninitialized				
-I sysLocation: Uninitialized				
-o sysContact: Uninitialized				
-n sysName: Uninitialized				
-a snmpEnableAuthenTraps: Disabled				
-i IP Address: 0.0.0.0				
-m Net Mask: 0.0.0.0				
-r Default Route 0.0.0.0				
-c Display/Modify Communities				
-t Display/Modify Trap Communities				
-b BootP mode: on				
-q Quit without saving configuration				
-x Exit, saving configuration to nonvolatile storage				
press a key:				

Ethernet Configuration Menu

Configuration Menu					
Pres	Press the key to modify the entry				
-d	sysDescr:	Uninitialized			
-l	sysLocation:	Uninitialized			
-0	sysContact:	Uninitialized			
-n	sysName:	Uninitialized			
-a	snmpEnableAuthenTraps:	Disabled			
-у	Ring Speed	16 Mb			
-i	IP Address:	0.0.0.0			
-m	Net Mask:	0.0.0.0			
-r	Default Route	0.0.0.0			
-c	Display/Modify Communities				
-t	-t Display/Modify Trap Communities				
-b					
-q	-q Quit without saving configuration				
-x Exit, saving configuration to nonvolatile storage					
press	press a key:				

Token Ring Configuration Menu

- 6. To modify an already configured SNMP agent, press "c" to access the SNMP Agent's configuration menu loaded with the current configuration settings (see Ethernet and Token Ring menus on previous page). Press the key associated with the parameter you wish to enter or modify, then type the desire value. Press Return when finished. Here are short descriptions of the first eight parameters:
 - sysDescr, sysLocation, sysContact, and sysName are text strings that give general information.
 - snmpEnableAuthenTraps enables or disables Authentication Failure trap messages to manager stations. Enter "e" to enable or "d" to disable, then press Return.
 - Ring Speed (Token Ring only) specifies information transfer speed.
 - IP Address contains the SNMP Agent's IP address in dotted decimal notation (e.g. 126.10.200.3). Type the desired address, then press Return.
 - Net Mask contains the Net Mask in dotted decimal notation (e.g. 255.255.128.0). Type the desire Net Mask, then press Return.
 - Default Route contains the IP Address of the network's default route in dotted decimal notation. Type the desired IP address, then press Return.
- 7. To configure communities, press "c" to access the Communities Configuration sub-menu loaded with the current communities configuration:

Communities Configuration				
#	IP Address	Priv	Community	
0:	198.30.160.58	write	public	
1:	198.160.30.2	write	Supervisor	
Enter the number of the community to modify/delete, "a" to add, or "e" to exit Command:				

Communities Configuration Sub-Menu

- Enter "a" to add a new community. Respond to the on-screen prompts.
- Enter community number from the "#" column to modify or delete a community. At the prompt, enter "d" to delete, or "m" to modify the community. When adding or modifying entries, respond to the on-screen prompts:
 - IP Address Enter in dotted decimal notation the IP address of the manager station authorized to use this community.
 - Privileges Enter "r" for Read-Only, "w" for Read-Write.
 - Community String (Name) Enter the community name. This entry is case-sensitive; be sure to enter it exactly as entered in the NMS.
 - Enter "e" to exit the sub-menu.

8. To configure trap communities, press "t" to access the Trap Communities Configuration sub-menu loaded with the current trap communities configuration:

Trap Communities Configuration

IP Address Community
0: 198.30.160.58 public

1: 198.160.30.2 Supervisor

Enter the number of the community to modify/delete, "a" to add, or "e" to exit Command:

Trap Communities Configuration Sub-Menu

With the exception of the "Privileges" entry, the Trap Communities Configuration sub-menu operates similarly to the Communities Configuration sub-menu. Set the IP Address to the Network Management Station's IP Address. When finished, enter "e" to exit the sub-menu.

- 9. Enter "b" to turn BootP mode ON or OFF. NOTE: BootP mode must be OFF to modify configuration settings. If on, BootP erases the settings when the user saves the configuration.
- 10. Exit the configuration mode:
 - Press "q" to exit without saving the modifications. The system immediately returns to the SNMP Agent.
 - Press "x" to save the new configurations to flash EPROM. The system automatically restarts the SNMP Agent using the new settings.

After exiting, you may return to configuration mode by pressing "c".

UPS & INTEGRATOR MIB COMPILATION

The enclosed diskettes contain MIB files your NMS needs to receive information from the UPS through SNMP communications. The files are in both DOS and TAR (UNIX) formats for your convenience.

Different UPS models require slightly different versions of the SNMP MIB. The README.TXT file gives the correct MIB file to use with your specific UPS. Print the README.TXT file for future reference.

- 1. Load the appropriate UPS MIB to your NMS.
- 2. Compile the UPS MIB. Refer to your NMS documentation for instructions on MIB compilation.

INTEGRATOR FEATURE CONFIGURATION

You may customize most Integrator monitoring and control features to meet specific needs. For example, you might configure the Integrator to sound an alarm or turn on a status light when the temperature or humidity is above or below a certain value.

Program individual attributes of the environmental MIB using SNMP SET commands. The Integrator stores the attributes in non-volatile memory, which protects the data against loss due to power failure or other corruption. Reprogram MIB attributes at any time.

Refer to your SNMP documentation for details on SET commands and MIB configuration.

SiteNet® Integrator's Environmental Interface

Use the following Integrator Environmental MIB information with the complete environmental MIB information to customize the Integrator for your needs.

DIGITAL INPUTS (10 available)

The Integrator supports ten digital inputs, each with four individually programmable attributes. These include:

Label - The user-assigned name of a particular input which includes the input connection location.

State - The user-defined logical state of the digital input. The state is either **TRUE**, **FALSE**, or **NOT INSTALLED**. The default state for all inputs is Not Installed. Define the state consistent with the Label for easy interpretation. Example: For a digital input labeled "Door Opened," define TRUE to mean the door is open.

Polarity -The active state of the relay contact inputs which includes

Polarity	State = TRUE	State = FALSE	
Active High	Contact OPEN	Contact CLOSED	
Active Low	Contact CLOSED	Contact OPEN	
Not Defined	Contacts are NOT INSTALLED		

Active High, **Active Low**, and **Not Defined**. Define polarity to force a TRUE or FALSE response when a contact is open or closed. The table above details polarity definitions. Example: If the polarity for a particular input is Active High and the contact is open when queried, the Integrator reports the State as TRUE.

Trap Enabled - Turns alarm traps for each digital input **ON** or **OFF**. If ON, an alarm trap generates when the digital input changes state. If OFF, no alarm trap generates regardless of the input state. The integrator stores configured digital inputs in non-volatile memory until they are reprogrammed.

OUTPUT RELAYS (2 available)

Output relays control the On/Off status of digital outputs. Control relays attributes include:

Label -The user-assigned name of a particular output relay. A sheet of adhesive labels supplied in this manual affix to the front of the Integrator to identify output relays.

State - The user-defined logical state of the output relay. Allows manual opening or closing of a relay contact. The state is either **ON** or **OFF**. When ON, normally open contacts are closed; when OFF, normally closed contacts are closed.

Control - Attaches a particular relay to any digital input and/or sensor. Enter a control value or sum of several values that opens the relay when corresponding condition(s) are TRUE. Appendix A lists all control values and their corresponding input or sensor.

Examples: If the control value is set to 1 for Relay1Control, the relay automatically opens when Digital Input 1 state is TRUE. If the control value is set to 33 (the sum of Digital Input 1 and Digital Input 5 TRUE), the relay automatically opens when either the Digital Input 1 state is TRUE or Digital Input 5 state is TRUE.

The SNMP Agent uses "OR" logic when decoding a sum of control values. A sum of control values opens the relay when any one of the conditions associated with the addends of the sum are met.

AUDIBLE ALARM (Horn)

The Integrator sounds an alarm when predefined digital input or sensor conditions are met. Alarm attributes include:

State - The user-defined logical state of the alarm. The state is either **ON** or **OFF**. When ON, the alarm sounds; when OFF, the alarm is silent.

Control - Attaches a particular alarm to any digital input and/or sensor. Enter a control value or sum of several values that sounds the alarm when corresponding condition(s) are TRUE. Appendix A lists all control values and their corresponding input or sensor.

Examples: If the control value is set to 1 for Audible Control, the alarm automatically sounds when the Digital Input 1 state is TRUE. If the control value is set to 33 (the sum of Digital Input 1 and Digital Input 5 TRUE), the alarm automatically sounds when either the Digital Input 1 state is TRUE or Digital Input 5 state is TRUE.

The SNMP Agent uses "OR" logic when decoding a sum of control values. A sum of control values opens the relay when **any one** of the conditions associated with the addends of the sum are met.

FRONT PANEL LED LIGHTS (3 provided)

The Integrator has three LED status indicators on the front panel. Configure them to turn On or Off when predefined digital input or sensor conditions are met. LED attributes include:

Label - The user-assigned name of a particular output relay. A sheet of adhesive labels supplied in this manual affix to the front of the Integrator to identify LED status indicators.

State - The user-defined logical state of the alarm. The state is either **ON** or **OFF**. When ON, the indicator lights; when OFF, the indicator does not light.

Control - Attaches a particular LED status indicator to any digital input and/or sensor. Enter a control value or sum of several values that lights the LED when corresponding condition(s) are TRUE. Appendix A lists all control values and their corresponding input or sensor.

Examples: If the control value is set to 1 for Audible Control, the LED automatically lights when the Digital Input 1 state is TRUE. If the control value is set to 17 (the sum of Digital Input 1 and Digital Input 5 TRUE), the LED automatically lights when either the Digital Input 1 state is TRUE or Digital Input 5 state is TRUE.

The SNMP Agent uses "OR" logic when decoding a sum of control values. A sum of control values opens the relay when any one of the conditions associated with the addends of the sum are met.

TEMPERATURE SENSORS (3 available)

The Integrator accommodates up to three temperature sensors. Sensor attributes include:

Label - The user-assigned name of a particular temperature sensor, which includes the sensor connection location.

State - The user-defined logical state of the alarm. The state is either INSTALLED or UNINSTALLED. The default state is UNINSTALLED until the sensor is physically connected.

Temperature Value - The temperature the sensor reads at the connection, user-programmable to °F or °C. The reported temperature is the actual temperature plus the offset value (see below).

Temperature Offset - A °F or °C temperature value automatically added to actual temperature sensor readings to compensate for known temperature fluctuations.

Examples: If the Integrator sensor reads 27°C and an external thermometer at the sensor connection reads 29°C, set the sensor's temperature offset to 2°C. If the Integrator sensor reads 27°C and the external thermometer reads 25°C, set the offset to -2°C.

High Limit Alarm - Indicates the temperature at or above which a trap generates for a high-temperature alarm. Enter high limit values in either °F or °C.

Low Limit Alarm - Indicates the temperature at or below which a trap generates for a low-temperature alarm. Enter low limit values in either °F or °C.

Calibrate - An automatic offset similar to the temperature offset and applicable only to Temp 3 (thermistor).

HUMIDITY SENSORS (2 available)

The Integrator accommodates two humidity sensors. Sensor attributes include:

Label - The user-assigned name of a particular humidity input, which includes the input connection location.

State - The user-defined logical state of the alarm. The state is either INSTALLED or UNINSTALLED. The default state is UNINSTALLED until the sensor is physically connected.

Humidity Value - The relative humidity (20% to 80%) the sensor reads at the connection. The reported relative humidity is the actual humidity plus the humidity offset value (see below).

Humidity Offset - A value added to the actual humidity sensor readings to compensate for known discrepancies.

Examples: If the Integrator sensor reads 60% RH and an external gauge at the connection reads 62%, set the sensor's humidity offset to 2%. If the Integrator sensor reads 60% RH and the external gauge reads 58%, set the offset to -2%.

High Limit Alarm - Indicates the relative humidity at or above which a trap generates for a high-humidity alarm.

Low Limit Alarm - Indicates the relative humidity at or below which a trap generates for a low-humidity alarm.

TRAPS

Use SNMP SET commands to program the following trap alarms ON or OFF:

Digital Inputs 1 through 10 TRUE trap

Digital Inputs 1 through 10 FALSE trap

Temperature sensors 1 through 3 HIGH trap

Temperature sensors 1 through 3 LOW trap

Temperature sensors 1 through 3 NORMAL trap

Humidity sensors 1 and 2 HIGH trap

Humidity sensors 2 and 2 LOW trap

Humidity sensors 1 and 2 NORMAL trap.

LCM Master Control

The LCM and SiteNet Integrator will allow for master control of all six receptacles. This includes:

Master On / Off—Controls all six LCM receptacles with on, off or reboot. If On, the receptacles can be individually controlled after the Master time delay. If Off, the receptacles are all turned off. If Reboot, receptacles are turned off for 20 seconds and then turned on. The receptacles can then be individually controlled after the Master time delay.

Master Delay—Used to delay power to each receptacle after an On or Reboot of the Master On / Off. The power on will be staggered from receptacle 1 through 6.

LCM Individual Control

The LCM and SiteNet Integrator will allow for individual control of six receptacles with four programmable attributes and one read only attributes. These include:

Label—The user assigned name of an individual receptacle.

State—The user defined individual control state of each receptacle. The state is either on, off, reboot, event on, event off or event reboot.

- If on, power will be turned on after the receptacle delay time.
- If off, power will be turned off after the receptacle delay time.
- If reboot, power will be removed after the receptacle delay time for 20 seconds and then power will be restored.
- If event_on, power will be off unless the condition specified by the control attribute is satisfied. Upon the event, the receptacle will be turned on after the receptacle delay time. When the event clears, power will be removed from the receptacle.
- If event_off, power will be on unless the condition specified by the control attribute is satisfied. Upon the event, the receptacle will be turned off after the receptacle delay time. When the event clears, power will be restored to the receptacle.
- If event_reboot, power will be on unless the condition specified by the control attribute is satisfied. Upon the event, the receptacle will be turned off after the receptacle delay time. After 20 seconds, the power will be restored to the receptacle.

Control—Attaches a particular receptacle to any digital input and/or sensor. Enter a control value or sum of several values that will set the output to the state specified by the control state.

Status—A read only variable that indicates the status of the receptacle.

Receptacle Delay—Used to delay on, off, reboot or event control of the receptacle.

INTEGRATOR ENVIRONMENTAL MIB

MIB Variable Name	MIB Variable Description
envldent Group	<u> </u>
envldentManufacturer	The Environmental Control Unit manufacturer.
envldentModel	The Environmental Control Unit Model designation.
EnvldentSoftware	The Environmental SNMP Agent software version.
Version	-
envldentSpecific	A reference to MIB definitions specific to the particular Environmental Unit being managed. Use this object to locate the product-specific MIB for this device. If this information is not present, set its value to the syntactically valid Object Identifier { 0 0 }, any conformant implementation of ASN.1 and BER must be able to generate and recognize this value.
envDigital Inputs Group	
envDigInput1State□envDigIn put2State□envDigInput3Stat e□envDigInput4State□envDi gInput5State□envDigInput6S tate□envDigInput7State□env DigInput8State□envDigInput 9State□envDigInput10State	The state of a Digital Input controlled by the Polarity variable associated with it. See Polarity variable below.
envDigInput1Label□envDigIn put2Label□envDigInput3Lab el□envDigInput4Label□envDi gInput5Label□envDigInput6L abel□envDigInput7Label□en vDigInput8Label□envDigInpu t9Label□envDigInput10Label	A user-defined text string associated with a Digital Input. The text string is stored in non-volatile memory.
envDigInput1Polarity□envDig Input2Polarity□envDigInput3 Polarity□envDigInput4Polarit y□envDigInput5Polarity□env DigInput6Polarity□envDigInput7Polarity□envDigInput8Polarity□envDigInput8Polarity□envDigInput10Polarity□e	Polarity controls the value returned by the State variable. Setting Polarity to notDefined (3) causes State to return notInstalled (3); when Polarity is set to activeHigh (1), asserting the signal on the Digital Input causes State to return true (1); when Polarity is set to activeLow (2), deasserting the signal on the Digital Input causes State to return true (1). In all other cases, State returns false (2). Polarity is stored in non-volatile memory.
envDigInput1TrapEnabled e nvDigInput2TrapEnabled en vDigInput3TrapEnabled env DigInput4TrapEnabled env DigInput4TrapEnabled envDigInput6TrapEnabled envDigInput7TrapEnabled envDigInput8TrapEnabled envDigInput8TrapEnabled envDigInput9TrapEnabled envDigInput9TrapEnabled envDigInput0TrapEnabled envDigInput1	Associate a Trap with the State variable for a Digital Input. Set the TrapEnabled variable to true (1) to generate a Trap message when the input changes state. Set the TrapEnabled variable to false (2) to generate no Trap message regardless of the state. TrapEnabled is stored in non-volatile memory.

MIB Variable Name	MIB Variable Description
envRelays Group	
envRelay1State □envRelay2S tate	The state of an Output Relay. Set State to on (1) to activate the Output Relay and close normally open contacts. Set State to off (2) to deactivate the Output Relay and close normally closed contacts.
envRelay1Label□envRelay2L abel	User-defined text strings associated with an Output Relay stored in non-volatile memory.
envRelay1Control□envRelay 2Control	Set Control to 0 for direct Output Relay control by the SNMP Manager. When Control contains any of the Control Values below or a value resulting from the sum of these values, the agent activates the output. The agent deactivates the output when conditions clear. Control is stored in non-volatile memory.
envOutputs Group	
envAudibleState	The state of the Audible Output. Set State to on (1) to activate the output. Set State to off (2) to mute the output.
envAudibleControl	Set Control to 0 for direct Audible Output control by the SNMP Manager. When Control contains any of the Control Values below or a value resulting from the sum of these values, the agent activates the output. The agent deactivates the output when conditions clear. Control is stored in non-volatile memory.
envLED1State□envLED1Stat e□envLED1State	The state of an Output LED. Set State to on (1) to light the LED. Set State to off (2) to extinguish the LED.
envLED1Label□envLED1Lab el□envLED1Label	User-defined text strings associated with an Output LED stored in non-volatile memory.
envLED1Control⊡envLED2C ontrol⊡envLED3Control	Set Control to 0 for direct LED control by the SNMP Manager. When Control contains any of the Control Values below or a value resulting from the sum of these values, the agent activates the output. The agent deactivates the output when conditions clear. Control is stored in non-volatile memory.
envAlarms Group	
envSummaryAlarm	This variable = 0 when no Digital Inputs are true and no other alarm conditions exist. When alarms are active or Digital Inputs are true, the value of envSummaryAlarm indicates which alarms and inputs are active as a sum of the Control Values below.

ENVIRONMENTAL MIB CONTROL VALUES

DigitalInput1State true(1)	1
DigitalInput2State true(1)	2
DigitalInput3State true(1)	4
DigitalInput4State true(1)	8
DigitalInput5State true(1)	16
DigitalInput6State true(1)	32
DigitalInput7State true(1)	64
DigitalInput8State true(1)	128
DigitalInput9State true(1)	256
DigitalInput10State true(1)	512

Temperature1 above HighLimit	1024
Temperature1 below LowLimit	2048
Temperature2 above HighLimit	4096
Temperature2 below LowLimit	8192
Temperature3 above HighLimit	16384
Temperature3 below LowLimit	32768
Humidity1 above HighLimit	65536
Humidity1 below LowLimit	131072
Humidity2 above HighLimit	262144
Humidity2 below LowLimit	524288

MIB Variable Name	MIB Variable Description
envTemperatureSensors Group	
envTemperature1State□envT emperature2State□envTemp erature3State	The state of a Temperature Input. Set State to installed (2) to indicate valid TemperatureF and TemperatureC variables from the sensor connected to the input. Set State to notInstalled (1) to indicate invalid TemperatureF and TemperatureC variables. This variable is stored in non-volatile memory.
envTemperature1F□envTem perature2F□envTemperature 3F	Sensor temperature in degrees Fahrenheit.
envTemperature1C□envTem perature2C□envTemperature 3C	Sensor temperature in degrees Celsius.
envTemperature1Label□env Temperature2Label□envTem perature3Label	User-defined text strings associated with a Temperature Input stored in non-volatile memory.
envTemperature1OffsetF□en vTemperature2OffsetF□envT emperature3OffsetF	A temperature correction offset associated with the Tempera-tureF variable for a Temperature Input. OffsetF is added to the value from the temperature sensor to obtain the value of Temp-eratureF. Changing OffsetF affects OffsetC for this Input as well. OffsetF is stored in non-volatile memory.
envTemperature1OffsetC□en vTemperature2OffsetC□envT emperature3OffsetC	A temperature correction offset associated with the Tempera-tureC variable for a Temperature Input. OffsetC is added to the value from the temperature sensor to obtain the value of Temp-eratureC. Changing OffsetC affects OffsetF for this Input as well. OffsetC is stored in non-volatile memory.
envTemp1HighLimitF□envTe mp2HighLimitF□envTemp3Hi ghLimitF	When TemperatureF for this Input reaches or exceeds the value of HighLimitF, a trap signifies a high-temperature condition for this Input. HighLimitF is stored in non-volatile memory.
envTemp1HighLimitC□envTe mp2HighLimitC□envTemp3H ighLimitC	When TemperatureC for this Input reaches or exceeds the value of HighLimitC, a trap signifies a high-temperature condition for this Input. HighLimitC is stored in non-volatile memory.
envTemp1LowLimitF□envTe mp2LowLimitF□envTemp3Lo wLimitF	When TemperatureF for this Input reaches or recedes below the value of LowLimitF, a trap signifies a low-temperature condition for this Input. LowLimitF is stored in non-volatile memory.
envTemp1LowLimitC□envTe mp2LowLimitC□envTemp3Lo wLimitC	When TemperatureC for this Input reaches or recedes below the value of LowLimitC, a trap signifies a low-temperature condition for this Input. LowLimitC is stored in non-volatile memory.
env Temp3Calibrate	A temperature offset correction routine associated with
envHumiditySensors Group	Temperature Sensor 3.
envHumidity1State⊡envHumi dity2State	The state of a Humidity Input. Set State to installed (2) to indicate valid HumidityRH variable from the sensor connected to the input. Set State to notInstalled (1) to indicate invalid HumidityRH variable. This variable is stored in non-volatile memory.
envHumidity1RH□envHumidi ty2RH	The Humidy for this sensor in percent RH.
envHumidity1Label□envHumi dity2Label	User-defined text strings associated with a Humidity Input stored in non-volatile memory
envHumidity1Offset□envHum idity2Offset	A temperature correction offset associated with the HumidityRH variable for a Humidity Input. The Offset is added to the value from the humidity sensor to obtain the value of HumidityRH. Offset is stored in non-volatile memory.
envHumidity1HighLimit□env Humidity2HighLimit	When HumidityRH for this Input reaches or exceeds the value of HighLimit, a trap signifies a high-humidity condition for this Input. HighLimit is stored in non-volatile memory.
envHumidity1LowLimit□envH umidity2LowLimit	When HumidityRH for this Input reaches or recedes below the value of LowLimit, a trap signifies a low-humidity condition for this Input. LowLimit is stored in non-volatile memory.

MIB Variable Name	MIB Variable Description
envTraps Group	
envSummaryAlarmTrap	An envSummaryAlarmTrap generates each time a digital input State variable changes to true (1) or whenever a temperature or humidity goes above the HighLimit or below the LowLimit.
envDigInput1TrueTrap□envDigInput2TrueTrap□envDigInput3TrueTrap□envDigInput4TrueTrap□envDigInput6TrueTrap□envDigInput6TrueTrap□envDigInput7TrueTrap□envDigInput8TrueTrap□envDigInput8TrueTrap□envDigInput9TrueTrap□envDigInput9TrueTrap□envDigInput9TrueTrap□envDigInput9TrueTrap□envDigInput10	A Digital Input TrueTrap signifies that the State variable for this Digital Input has changed from false (2) to true (1). This trap is not generated if the Digital Input's TrapEnabled variable is not true (1).
envDigInput1FalseTrap□env DigInput2FalseTrap□envDigI nput3FalseTrap□envDigInput 4FalseTrap□envDigInput5Fal seTrap□envDigInput6FalseTr ap□envDigInput7FalseTrap□envDigInput8FalseTrap□envDigInput9FalseTrap□envDigInput9FalseTrap□envDigInput10FalseTrap□envDigInput10FalseTrap□envDigI	A Digital Input FalseTrap signifies that the State variable for this Digital Input has changed from true (1) to false (2). This trap is not generated if the Digital Input's TrapEnabled variable is not true (1).
envTemperature1HighTrap□ envTemperature2HighTrap□ envTemperature3HighTrap	A Temperature Input HighTrap signifies that the sensor reading exceeds the HighLimit value.
envTemperature1LowTrap□e nvTemperature2LowTrap□en vTemperature3LowTrap	A Temperature Input LowTrap signifies that the sensor reading is less than the LowLimit value.
envTemperature1NormalTrap □envTemperature2NormalTr ap□envTemperature3Normal Trap	A Temperature Input NormalTrap signifies that the sensor reading is within the range bounded by HighLimit and LowLimit values.
envHumidity1HighTrap□env Humidity2HighTrap	A Humidity Input HighTrap signifies that the sensor reading exceeds the HighLimit value.
envHumidity1LowTrap□envH umidity2LowTrap	A Humidity Input LowTrap signifies that the sensor reading is less than the LowLimit value.
envHumidity1NormalTrap⊡en vHumidity2NormalTrap	A Humidity Input NormalTrap signifies that the sensor reading is within the range bounded by HighLimit and LowLimit values.

INTERGRATOR LCM MIB

MIB Variable Name	MIB Variable Description
envReceptacles Group	
envReceptacles Group□envReceptacle1State □envReceptacle2 State□envReceptacle3State □envReceptacle4State□env Receptacle5State□envRecep tacle6State	The state of a LCM Receptacle. Set state to on (1) to apply power to the receptacle after the delay specified by the corresponding envReceptacleReceptDelay. Set state to off (2) to remove power from the receptacle after the delay specified by the corresponding envReceptacleReceptDelay. Set state to reboot (3) to remove power from the receptacle after the delay specified by the corresponding envReceptacleReceptDelay for 20 seconds and then turn power back on. Set state to event_on (4) to have power at the receptacle off unless the condition specified by the corresponding envRecetpacleControl is satisfied. Upon the event, the receptacle will be turned on after the delay specified by the corresponding envRecetpacleReceptDelay. When the event clears, power will be removed from the receptacle. If the event clears before the time delay expires, the receptacle will not be turned on and the time delay will reset. Set state to event_off (5) to have power at the receptacle on unless the condition specified by the corresponding envRecetpacleControl is satisfied. Upon the event, the receptacle will be turned off after the delay specified by the corresponding envRecetpacleReceptDelay. When the event clears, power will be restored to the receptacle. If the event clears before the time delay expires, the receptacle will not be turned off and the time delay will reset. Set state to event_reboot (6) to have power at the receptacle on unless the condition specified by the corresponding envRecetpacleControl is satisfied. Upon the event, the receptacle will be turned off after the delay specified by the corresponding envRecetpacleControl is satisfied. Upon the event, the receptacle will be turned off after the delay specified by the corresponding envRecetpacleControl is satisfied. Upon the event, the receptacle will be turned off after the delay specified by the corresponding envRecetpacleReceptDelay. After 20 seconds, the power will be restored to the receptacle. This process is non-reversible, if the event clears before the time
envReceptacle1Label□envR eceptacle2Label□envRecept acle3Label□envReceptacle4 Label□envReceptacle5Label	A user-defined text string associated with a receptacle. The maximum length of the text string is 64 characters. The text string is stored in non-volatile memory.
□envReceptacle6Label envReceptacle1Control□env Receptacle2Control□envReceptacle3Control□envReceptacle5 Control□envReceptacle5 Control□envReceptacle6Control□	When Control contains any of the Control Values, or a value resulting from the sum of any of these values the Agent will set the output to the state specified by the corresponding envReceptacleControlState. When all conditions clear the receptacle will return to the initial state. The control variable is stored in non-volatile memory.
envReceptacle1Status = envR eceptacle2Status = envRecept acle3Status = envReceptacle4 Status = envReceptacle5Statu s = envReceptacle6Status	The status of the receptacle. When status is on (1) power will be available on the receptacle. When status is off (2) power will not be available on the receptacle. When status is reboot (3) the power is being removed from the receptacle for 20 seconds and then power will be restored. When status is event_on (4) power will be available on the receptacle. When status is event_off (5) no power will be available from the receptacle. When status is event_reboot (6) the power is being removed from the receptacle for 20 seconds and then power will be restored.
envReceptacle1ReceptDelay □envReceptacle2ReceptDela y□envReceptacle3ReceptDel ay□envReceptacle4ReceptD elay□envReceptacle5Recept Delay□envReceptacle6Rece ptDelay	Receptacle control delay is used to delay the on, off, reboot or event control of the receptacle. Delay is stored in non-volatile memory.

MIB Variable Name	MIB Variable Description
envReceptacleMaster	
envReceptacleMasterOnOff	The state of the Receptacle Master Control. When the state is on (1) power to each receptacle will be under the control of the individual states and events. When state is set to off (2) no power is available from any receptacle. When set to reboot (3), power will be removed from all receptacles for 20 seconds and then returned to control of the individual states and events.
envReceptacleMasterDelay	Receptacle master delay is used to delay the power to each receptacle after a on or reboot of the envReceptacleMasterOnOff. The power return will be staggered from 1 thru 6.

SAMPLE TFTP FILE

Example Liebert UPS SNMP Agent Configuration file for BOOTP and TFTP. The user names this file and stores it on the bootp server. The server sends the name of the file to the agent when the agent requests it.

sysDescr Liebert SNMP agent sysLocation Columbus, OH

sysContact Your Name + 1 614 555 1234

sysName Sys Name Here

Set snmpEnableAuthenTraps to 1 (Enabled) or 2 (Disabled)

snmpEnableAuthenTraps 1

Community Specification.

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The format of the value clause is:

<community name, IP address, privileges>

The community name may be any string.

- The IP address indicates the remote site for which this community is valid. If the IP address is 0.0.0.0, any address may communicate using that community name.
- The privileges are any one of the following:

READ for read only.

WRITE for read/write.

NONE to lock out a community name.

community	public	0.0.0.0	read
community	woff	192.147.142.16	write

Trap Community Specification.

The format of the value clause is:

<community name, IP address>

trap test2 192.147.142.15 trap fileserver 192.147.142.16

INTEGRATOR & LCM COMPONEN	TS AND PARTS
Desk Top/Ethernet 50Hz	INTGR-DSE50
Desk Top/Ethernet 60Hz	INTGR-DSE60
Desk Top/Token Ring 50Hz	INTGR-DST50
Desk Top/Token Ring 60Hz	INTGR-DST60
19" Rack/Ethernet 50Hz	INTGR-19SE50
19" Rack/Ethernet 60Hz	INTGR-19SE60
19" Rack/Token Ring 50Hz	INTGR-19ST50
19" Rack/Token Ring 60Hz	INTGR-19ST60
24" Rack/Ethernet 50Hz	INTGR-24SE50
24" Rack/Ethernet 60Hz	INTGR-24SE60
24" Rack/Token Ring 50Hz	INTGR-24ST50
24" Rack/Token Ring 60Hz	INTGR-24ST60
Integrator Power Supply - 120 VAC, 60 Hz	141004P1
Integrator Power Supply - 220 VAC, 50 Hz	141669P1
Integrator to Terminal Cable/Adapter	146618P1 / 146617P1
Ferrite Beads5"/.25"	146735P1 / 146736P1
Wall-Mount Thermistor	135208P1
Liquitect (water detection) with Dry Contact Output*	141603G1L
120/24 VAC Plug-In Transformer*	141469P1
Temperature / Humidity Sensor – 10ft (3m) cable	141604G1L
Temperature / Humidity Sensor – 30ft (9m) cable	141605G1L
LCM / 120 VAC	LCM-NEMA-15
LCM / 230 VAC	LCM-IEC-10
10-Foot 8-Pin DIN Cable to LCM	146654G1

^{*}Liquitect requires 12 or 24 VAC power which must be provided by the customer or via the 120/240 VAC Plug-In Transformer Option. Option includes 65 ft (20m) cable.

Integrator Specifications		
Power Requirements Main/Aux	9 VDC, 15 Watts	
Dimensions H x W x D	1.5 x 17.25 x 7.5 in	
	(3.8 x43.8 x 19.0 cm)	
Unit weight / Shipping weight	4.74 lbs (2.15 kg)	
Temperature Range	32° to 140° F (0° to 60° C)	
Thermistor Range	32° to 95° F (0° to 35° C)	
Humidity Range	20% to 80% RH	
Agency Approvals	UL, cUL, FCC, CE marked	

LCM 1	20V SPECIFICATIONS
Power Requirements	120 VAC Nominal, 50 or 60 Hz (Range 80-132 VAC)
Power Input	EN 60320/C14 Connector (120 VAC, 15 Amps)
Power Output	(6) 5-15R Receptacles (Max. Total Current = 12 Amps)
Dimensions HxWxD	1.75 x 17.25 x 7.6 inches / 4.4 x 43.8 x 19.3 cm
Unit Weight / Shipping Weight	5.5 lbs. (2.5 kg) / 10.7 lbs. (4.9 kg)
Circuit Breaker	15 amp
LED Indicators	Each Output Plus Main Power
Agency Approvals	UL, cUL

LCM 230V SPECIFICATIONS	
Power Requirements	230 VAC Nominal, 50 or 60 Hz (Range 160-240 VAC)
Power Input	EN 60320/C14 Connector (230 VAC, 10 Amps)
Power Output	(6) EN 60320/C13 Receptacles (Max. Total Current = 10 Amps)
Dimensions HxWxD	1.75 x 17.25 x 7.6 inches / 4.4 x 43.8 x 19.3 cm
Unit Weight / Shipping	5.5 lbs. (2.5 kg) / 10.7 lbs. (4.9 kg)
Weight	
Circuit Breaker	10 amp
LED Indicators	Each Output Plus Main Power
Agency Approvals	CE Marked, EN60950

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 This Warranty represents the entire agreement between Liebert and User with respect to the significant of the significant o
- This Warranty represents the entire agreement between Liebert and User with respect to the subject matter herein and supersedes all prior or contemporaneous oral or written communications, representations, understandings or agreements relating to this subject.

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"LIFE SUPPORT" APPLICATIONS

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